


## Extremely thin beam ideal for detection of minute objects and marks

- Ideal for detection of small objects and slight color differences
- Bad mark detection
- Detection of thin wire of 200  $\mu$
- Detection of slight level differences.








 Be sure to read *Safety Precautions* on page 4.

## Ordering Information

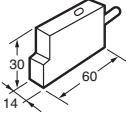

### Sensors

#### Sensor Heads

 Red light  Green light


Sensing method	Appearance	Connection method	Sensing distance	Model
Reflective model (for mark detection)		Pre-wired (2 m)	 10 $\pm$ 2 mm	E3C-VS1G 2M
			 30 $\pm$ 5 mm	E3C-VS3R 2M
	 35 $\pm$ 5 mm		E3C-VM35R 2M	
	 70 $\pm$ 10 mm		E3C-VS7R 2M	

#### Amplifier Units

Power supply	Application	Appearance	Function	Model
DC	Slim body			E3C-JC4P 2M

### Accessories (Order Separately)

#### Mounting Brackets

Appearance	Model	Quantity	Remarks
	E39-L42	2	Can be used with the E3C-VS1G, or E3C-VS3R.

Refer to Mounting Brackets on E39-L/E39-S/E39-R for details.

## Ratings and Specifications

### Sensor Head

Item	Sensing method Model	Reflective model (for mark detection)			
		E3C-VS1G	E3C-VS3R	E3C-VM35R	E3C-VS7R
<b>Sensing distance</b>		10±2 mm	30±5 mm	35±5 mm	7±10 mm
<b>Minimum detectable object (black mark on white)</b>		0.7 mm at central sensing distance	2 mm at central sensing distance	0.2 mm at central sensing distance	0.6 mm at central sensing distance
<b>Light source (wavelength)</b>		Green LED (565 nm)	Red LED (680 nm)	Red LED (660 nm)	
<b>Ambient illumination</b>		Incandescent lamp: 1,000 lx max. (on light-receiving side) Sunlight: 3,000 lx max. (on light-receiving side)			
<b>Ambient temperature range</b>		Operating: -10 to 70°C (with no icing or condensation) Storage: -25 to 70°C (with no icing or condensation)		Operating/storage: -25 to 70°C (with no icing or condensation)	
<b>Ambient humidity range</b>		Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)			
<b>Insulation resistance</b>		20 MΩ min. (at 500 VDC)			
<b>Dielectric strength</b>		500 VAC, 50/60 Hz for 1 min			
<b>Vibration resistance (destruction)</b>		10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions			
<b>Shock resistance (destruction)</b>		500 m/s <sup>2</sup> 3 times each in X, Y, and Z directions			
<b>Degree of protection</b>		IEC IP64 (indoors only)		IEC IP50 (indoors only)	
<b>Connection method</b>		Pre-wired cable (standard length: 2 m)			
<b>Weight (packed state)</b>		Approx. 50 g		Approx. 60 g	
<b>Material</b>	<b>Case</b>	Polycarbonate		Heat-resistant ABS	
	<b>Lens</b>	Polycarbonate		Glass	
	<b>Mounting Bracket</b>	---		Steel	
<b>Accessories</b>		Instruction manual		Mounting Bracket, Slotted/ Phillips screws M3 × 16, Spring washer, Flat washer, M3 nuts	Mounting Bracket, Slotted/ Phillips screws M3 × 16, Spring washer, Flat washer, M3 nuts, Instruction manual

### Amplifier Units

Refer to *E3C*.

### I/O Circuit Diagrams

Refer to *E3C*.

### Connection

Refer to *E3C*.

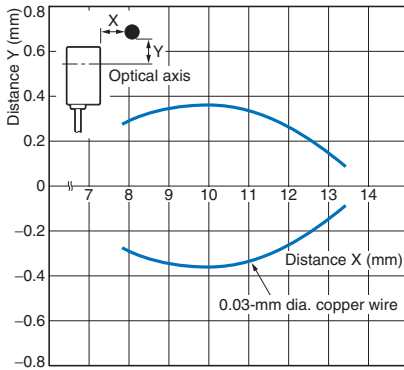
### Connectors

Refer to *E3C*.

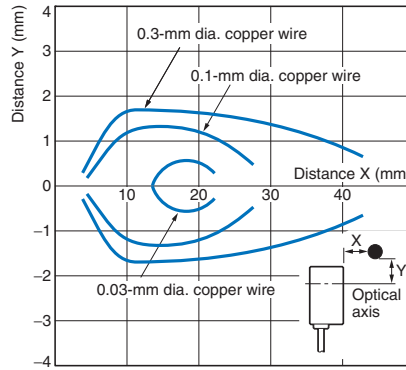
Engineering Data (Reference Value)

Operating Range

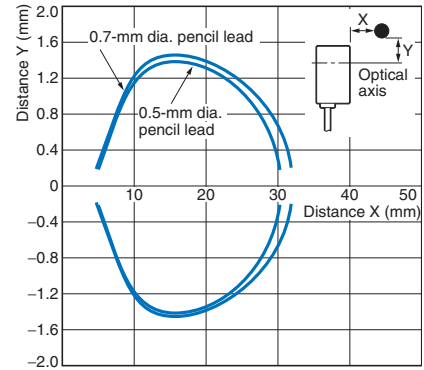
E3C-VS1G



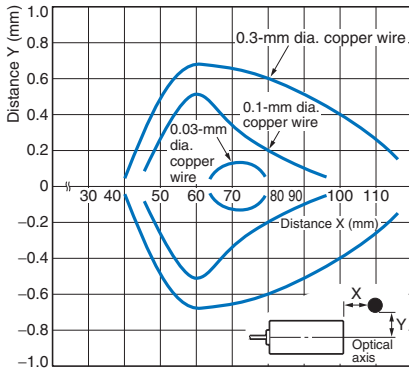
E3C-VS3R



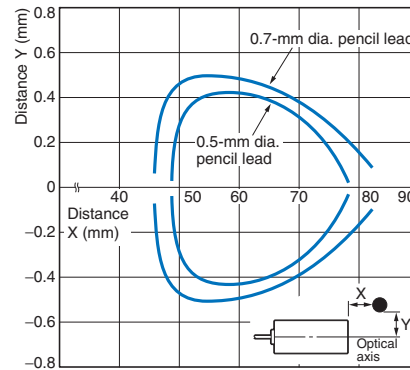
E3C-VS3R



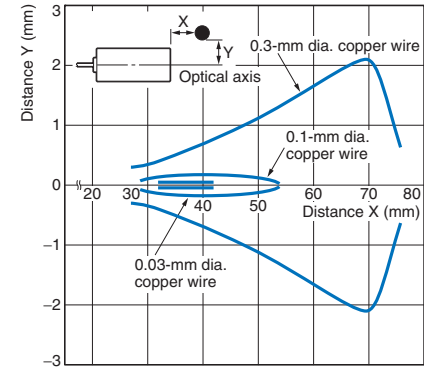
E3C-VS7R



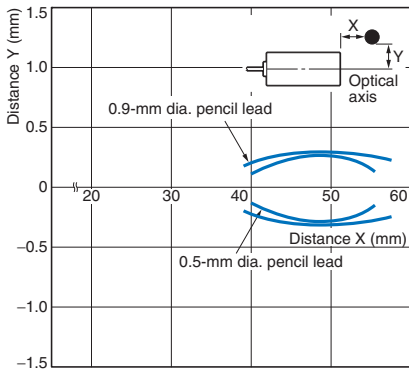
E3C-VS7R



E3C-VM35R

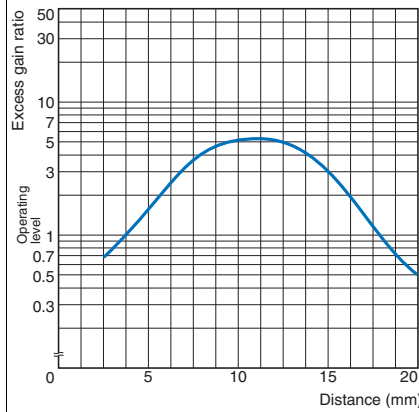


E3C-VM35R

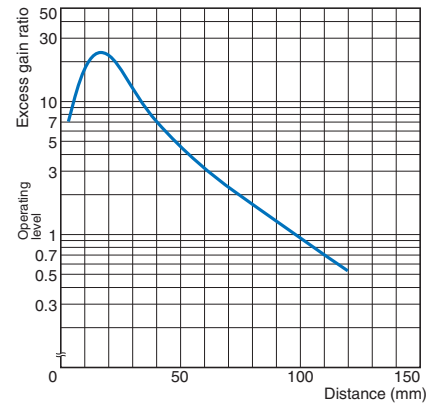


Excess Gain vs. Set Distance

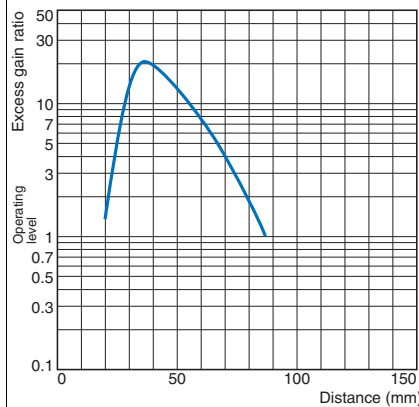
E3C-VS1G



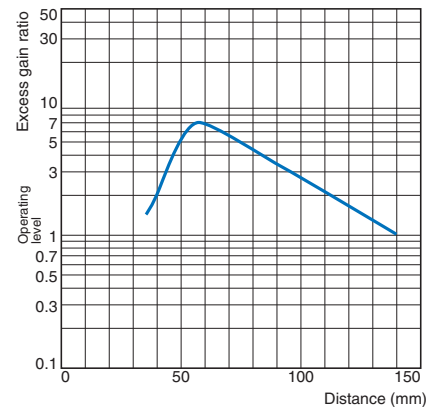
E3C-VS3R



E3C-VM35R



E3C-VS7R



## Safety Precautions

Refer to *Warranty and Limitations of Liability*.

**⚠ WARNING**

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



**Precautions for Correct Use**

Do not use the product in atmospheres or environments that exceed product ratings.

● **Wiring**

For details on [Extension Cables](#), refer to E3C.

## Dimensions

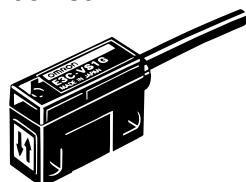
(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

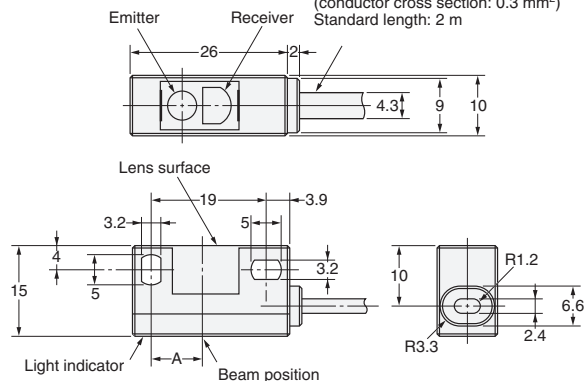
### Sensors

#### Sensor Heads

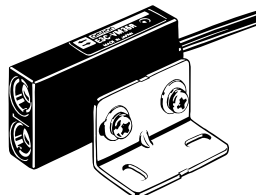
**E3C-VS1G  
E3C-VS3R**



Shielded cable,  
2.4 dia. × 4.3, with two conductors  
(conductor cross section: 0.3 mm<sup>2</sup>)  
Standard length: 2 m

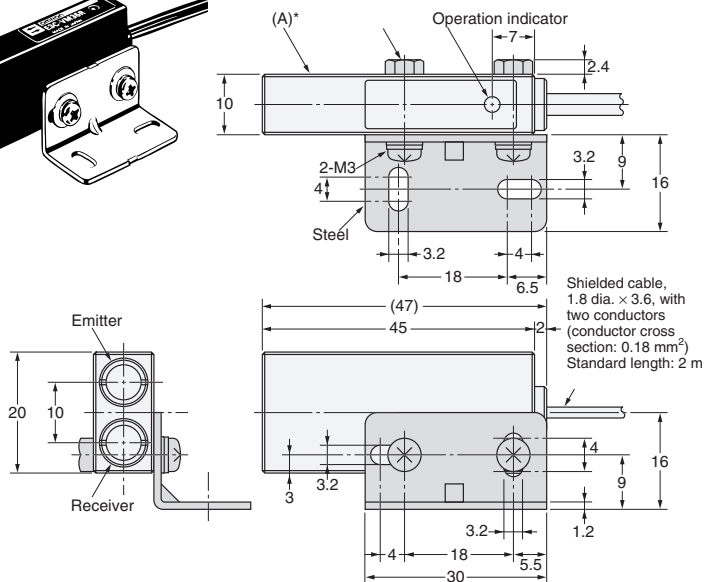


**E3C-VM35R  
E3C-VS7R**



**With Mounting Bracket Attached**

Two hexagonal nuts  
for M3 (diagonal: 5.5)



#### Amplifier Unit

Refer to *E3C* for details.

#### Accessories (Order Separately)

##### Mounting Brackets

Refer to *E39-L/F39-L/E39-S/E39-R* for details.

## Terms and Conditions Agreement

### Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

### Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

### Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

### Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

### Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

### Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

### Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2014.7

In the interest of product improvement, specifications are subject to change without notice.

**OMRON Corporation**  
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2014 All Right Reserved.